

Serial No. 10/524,877

KUD-004

Amendments to the Abstract

Please replace the previous Abstract with a new version, as follows.

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An air refrigerant cooling apparatus has magnetic bearings with high reliability and high efficiency. The air refrigerant cooling apparatus includes a motor having a first magnetic bearing and a second magnetic bearing for supporting a shaft, a compressor and an expansion turbine. The compressor is connected to the shaft and separated from the first magnetic bearing by a first labyrinth. The expansion turbine is connected to the shaft and separated from the second magnetic bearing by a second labyrinth. Pressure differences are generated between spaces where the first magnetic bearing and the second magnetic bearing are provided and respective inlet of the compressor and outlet of the expansion turbine by an external pressure outside the motor.